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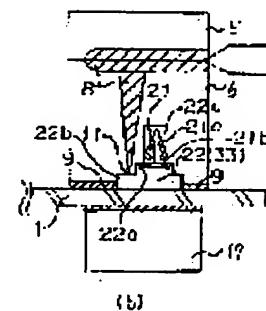
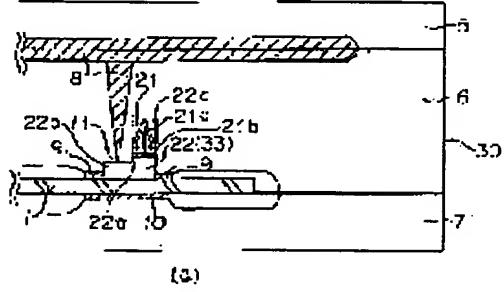
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(54) MANUFACTURE OF BOARDLIKE BODY FOR WINDOW PROVIDED WITH FITTING MEMBER

(57)Abstract:

PURPOSE: To obtain a manufacture of a boardlike body provided with a fitting member which requires neither an increase of a number of parts nor surplus processes.

CONSTITUTION: A fitting member 21 is fitted to a recessed part 22 provided on the undersurface of an intermediate force 6 of a mold 30 for molding resin, which possesses a top force 5, the intermediate force 6 and a bottom force 7 and the recessed part 22 of a cavity space whose fringe part is formed of the fringe part of a boardlike part 1 pinched and held between the intermediate force 6 and bottom force 7, resin material is injected and the boardlike body provided with the fitting member is manufactured.



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CLAIMS

[Claim(s)]

[Claim 1] The periphery section of the plate for apertures is pinched by the resin molding die which consists of at least two mold parts. The cavity space formed of the crevice and one side face of a plate which only a predetermined distance was prepared in the location equivalent to an inner circumference side from the end face of said plate of one mold part is equipped with the member for anchoring. The manufacture approach of the plate for apertures with a member for anchoring characterized by injecting the plinth molding resin ingredient of said member for anchoring, making it solidify in said cavity space, and fabricating the plinth of the member for anchoring in one with the member for anchoring on one side face of a plate.

[Claim 2] Said crevice is the manufacture approach of the plate for apertures with a member of claim 1 characterized by having at least two parts from which the depth differs, equipping with said member for anchoring the one where the depth of said two parts is deeper, and introducing said resin ingredient in cavity space from the one where the depth is shallower for anchoring.

[Claim 3] The manufacture approach of the plate for apertures with a member of claims 1 or 2 characterized by dividing the whole surface of cavity space and preventing the inflow of said resin ingredient to the member wearing part for anchoring of said crevice by the pars basilaris ossis occipitalis of said member for anchoring for anchoring.

[Claim 4] It has the wall constituted by one [at least] mold part so that the 2nd cavity space might be formed in the location which only a predetermined distance isolated from said crevice to the periphery side. The manufacture approach of the plate for apertures with a member of claims 1, 2, or 3 characterized by injecting a resin ingredient, making it solidify in the 2nd cavity space formed in this wall and the periphery section of a plate, and fabricating a frame in one in the periphery section of a plate for anchoring.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] In case this invention attaches a plate in aperture opening with adhesives especially about the manufacture approach of the plate with a member for anchoring used in case the plate for apertures is attached in aperture opening, it relates a plate to the manufacture approach of a plate of having positioning and a member for tacking carrying out in aperture opening.

[0002]

[Description of the Prior Art] The plate for apertures intervenes sealants, such as urethane, between aperture opening and a plate, and is attached in aperture opening. Otherwise a clip, a stud bolt, etc. which were attached in the plate are inserted in the predetermined hole of aperture opening, and there is also a method of attaching the plate for apertures in aperture opening.

[0003] The clip which carries out [tacking] of the plate, the clip positioned so that a plate may be attached in the position of aperture opening may be attached in a plate until aperture opening and a plate paste up firmly by the sealant in the case of the former. Moreover, in the case of the latter, sealants for water leak prevention, such as a butyl sealant, intervene separately between aperture opening and a plate, and the watertightness of an aperture is secured. In addition, sealants, such as the former urethane, have the water leak prevention effectiveness in itself.

[0004] Although the member (these are named generically below and it is called the member for anchoring) used in order to attach plates, such as these stud bolts, clips, etc., in aperture opening may be directly attached in a plate as mentioned above, in case a plate is otherwise attached in aperture opening, it may be attached in the frame made of synthetic resin fabricated by the periphery section of a plate in one.

[0005] Anchoring to the plate of such a member for anchoring or a frame makes sealants, double-sided tapes, etc., such as urethane, intervene between the member for anchoring, and predetermined locations, such as a plate, and adhesion anchoring is carried out.

[0006]

[Problem(s) to be Solved by the Invention] Generally, the member for anchoring is attached so that it may be extended in the direction of a normal of the field of a plate. Therefore, the sense of the member for anchoring tends to be influenced by the curvature of a plate. When it is going to raise the precision of the sense of the member for anchoring, the management more than before of the curvature of the member for anchoring or a plate is needed, and the tool for adhesion must also be dedicated. Furthermore, if it is going to set the sense of the member for anchoring as arbitration specially, it is necessary to devise the configuration of the member for anchoring itself. In using two or more especially members for anchoring, the class is needed only for the number to be used.

[0007] Moreover, in using an urethane sealant for anchoring to the plate of the member for anchoring, in order to take time amount for an urethane sealant to harden, the reservation of a tooth space which keeps these was required.

[0008] On the other hand, when attaching the member for anchoring in a frame, the member for anchoring is usually arranged at the inner surface side of a frame. When the sealant for water leak prevention is separately applied between a frame and aperture opening, the above-mentioned member for anchoring will be arranged at the periphery side of this sealant, its reliance is low to watertightness, and water leak prevention components, such as packing, are further needed for water leak prevention.

[0009] Then, it is possible by making large width of face by the side of the inner circumference of the plate of a frame to arrange the member for anchoring to the inner circumference side of the sealant for water leak prevention. However, the thickness of the whole aperture becomes thick by the thickness of a sealant in this

case, and only a part to make it large needs an excessive frame ingredient for an inner circumference side further.

[0010] Preparing the overhang by the side of the inner circumference of a frame only in the part which arranges the member for anchoring as a plinth of the member for anchoring as a means which prevents the increment in a frame ingredient is proposed arranging the member for anchoring to the inner circumference side of the sealant for water leak prevention. One shaping of the frame to the periphery section of a plate pinches the periphery section of a plate to a resin molding die, and is performed by injecting resin to the cavity space of metal mold. Then, by establishing the TWY of a pons I-like resin ingredient in this metal mold, the above-mentioned plinth can be fabricated to a plate at one, and the member for anchoring is attached in this plinth.

[0011] However, since the part fabricated by the TWY of the resin ingredient of the shape of this pons me is a part of the round which is in fixed distance from the end face of a plate, with the level difference of a part with the overhang by the side of inner circumference, and the part which is not, a clearance is generated and it can never attain sufficient water leak prevention. Furthermore, with the pons I-like part and plate which are some frames, in case a water leak prevention sealant is applied, the primer used suitably must be prepared, respectively.

[0012] By removing, after fabricating this pons I-like part, the plinth of the member for anchoring can be prepared in a plate, and the sealant for water leak prevention can be applied to the plate side by the side of a periphery without a level difference rather than it. However, a process excessive for a pons I-like part removing such an approach very much will start. Furthermore, there is a fault that there is a danger of damaging a plate according to this activity.

[0013]

[Means for Solving the Problem] The periphery section of the plate for apertures is pinched by the resin molding die which this invention is made that the above-mentioned technical problem should be solved, and consists of at least two mold parts. The cavity space formed of the crevice and one side face of a plate which only a predetermined distance was prepared in the location equivalent to an inner circumference side from the end face of said plate of one mold part is equipped with the member for anchoring. It is the manufacture approach of the plate for apertures with a member for anchoring characterized by injecting the plinth molding resin ingredient of said member for anchoring, making it solidify in said cavity space, and fabricating the plinth of the member for anchoring in one with the member for anchoring on one side face of a plate.

[0014] Hereafter, this invention is explained to a detail based on a drawing. Drawing 1 (a) is the outline sectional view showing an example of the manufacture approach of the plate for apertures with a member for anchoring in this invention, and drawing 1 (b) is the modification. The resin molding die 30 has a punch 5, an intermediate type 6, and female mold 7, and sprue, a runner, and the resin passage 8 that consists of the gate are formed between the punch 5 and the intermediate type 6. When the crevice 22 is established in the underside of an intermediate type 6 and the periphery section of a plate 1 is pinched with an intermediate type 6 and female mold 7, cavity space is formed of a crevice 22 and one side face of a plate 1.

[0015] In this case, it is desirable to have the packing 10 which becomes the part which contacts the plate 1 of female mold 7 from the polyurethane rubber which pinches a plate 1 flexibly. Moreover, it is desirable to have the absorption member 9 which becomes the part which contacts the plate 1 of an intermediate type 6 from the fluororubber which can absorb the deflection of the curvature of a plate 1.

[0016] a crevice 22 -- the longitudinal section -- abbreviation -- it is stair-like and has partial 22a with the deep depth, and shallow partial 22b. The resin passage outlet 11 is established in the above-mentioned shallow part, and a resin ingredient is injected from this resin passage outlet 11 in cavity space. Moreover, deep partial 22a of a crevice 22 is equipped with the member 21 for anchoring.

[0017] Under the present circumstances, when upper member body section 21a for anchoring has a plate-like part for the shape of an approximate circle drill in nothing and pars-basilaris-ossis-occipitalis 21b as a desirable configuration of the member 21 for anchoring, this plate-like part functions as a lid which divides the top face of cavity space, and the inflow of the resin ingredient to the upper part which is member wearing partial for anchoring 22c of a crevice 22 can be prevented. Moreover, a crevice 22 is certainly equipped with the member 21 for anchoring by being an approximate circle drill-like. In addition, the function of the above-mentioned lid may be equipped with a means by which do not prepare for the member for anchoring itself, but ** also prevents the inflow of the resin ingredient to the member wearing part for anchoring separately, and the above-mentioned inflow prevention is made by one of means.

[0018] In this way, the plinth of the member for anchoring is really fabricated by the plate with the member

for anchoring by equipping deep partial 22a of a crevice 22 with the member for anchoring, pinching a plate 1 with an intermediate type 6 and female mold 7, injecting a resin ingredient to cavity space, solidifying it, and picking out a plate from metal mold.

[0019] As the member body section for anchoring, even if it is not the thing of the above-mentioned cone configuration, a cross section can also use an abbreviation triangle-like thing. That is, the thing equipped with the flat-spring function to make a breadth configuration at last towards a pars basilaris ossis occipitalis from the head of the body section can also be illustrated. In this case, the omission after wearing of the member for anchoring can be prevented, and a location gap of the member for anchoring can also be prevented with the pressure of a resin ingredient.

[0020] The boundary of the middle and the maximum upper case furthermore, by covering in the plate-like part of a pars basilaris ossis occipitalis by equipping the maximum upper case of a stairway only with the body section, using the stairway configuration of a crevice as three steps It leaks [a resin ingredient / to a body section side] with resin pressure and is desirable, even if a plate-like part engages with a middle upside and a resin ingredient is injected in cavity space (refer to drawing 1 (b)).

[0021] As a plate in this invention, it may be a plate-like thing, you may be the thing of the letter of curvature, and veneer glass is made into the start as the ingredient, and various things, such as glass plates, such as multiple glass and a glass laminate which the glass plate of at least one sheet and the film made of synthetic resin pasted up, and an organic transparence resin plate, a thing which carried out two or more sheet laminating of these further, are used.

[0022] In addition, when an example is taken by adhesive improvement with a plate and the plinth of an anchoring member, it is desirable to perform priming to the location in which the plinth of the member for anchoring of a plate is prepared using adhesives, such as an urethane system, acrylic, a nylon system, a phenol system, a polyester system, and a silane system, beforehand. Moreover, since the adhesive property of the member for anchoring and a plinth improves, it is desirable to apply proper adhesives also to the member for anchoring.

[0023] As an ingredient of the plinth in this invention, additives, such as a plasticizer, are added, for example by using at least one sort or two sorts or more of mixture of the copolymer of a polyvinyl chloride, a vinyl chloride / ethylene, the copolymer of a vinyl chloride/vinyl acetate, the copolymer of a vinyl chloride/propylene, and copolymer [of a vinyl chloride / ethylene / vinyl acetate] ** as base resin, it considers as an elasticity ingredient, and a compound is carried out, and in order to raise a fluidity, other thermoplastics can also be blended.

[0024] As thermoplastics to blend, at least one sort or two sorts or more of mixture, rubber, and EVA and ABS, which contains chlorination polyethylene resin, urethane denaturation vinyl chloride resin, urethane resin, polyester system resin, acrylic resin, a polyester elastomer, NBR, or SBR at least is used.

[0025] Although these ingredients are fabricated by the usual injection molding, the plinth in this invention may be fabricated by the reaction injection molding which otherwise injects a reactant urethane resin ingredient. Furthermore, a thermosetting resin ingredient is also mentioned as an ingredient to be used. It is desirable to use the above-mentioned thermoplastics in which the hot runner method and reuse which can decrease a part for the ingredient of the resin passage section are possible.

[0026] The frame made of synthetic resin which intervenes between aperture opening and a plate may really be fabricated by the periphery section of a plate. When fabricating this frame with the same ingredient as a plinth, a plinth and a frame can really be easily fabricated to a plate by injecting a resin ingredient in the 2nd cavity space at injection of the resin ingredient into the 1st cavity space formed with a crevice and a plate, and coincidence by establishing the 2nd cavity space in the location by the side of the periphery of a plate rather than the crevice of metal mold.

[0027] Generally as a resin molding die in this invention, the usual metal metal mold is employable. A mold with a cheap heat-resistant-resin mold etc. is also employable with control of the injection pressure of the number of production lot, and a resin ingredient etc. In the above-mentioned example, although the resin molding die consists of three mold parts, if it consists of at least two mold parts, it is enough and can be suitably determined according to the demand on the configuration of sprue, a runner, the gate, etc.

[0028] For example, one mold part which consists of sprue, runners, punches 15 joined so that the gate (resin passage 8) might be formed, and intermediate types 16 as shown in drawing 1 (b), It is desirable to constitute a resin molding die for the mold part which consists of a backup member 17 (it is desirable to have packing in a contact side with a plate) for preventing the deflection and breakage by the injection pressure of the resin ingredient of a plate 1 as two mold parts. This is because only the required part of a plate is pinched by two mold parts (the part and the backup member 17 of the intermediate type 16 of a

punch 15 and the intermediate types 16), so breakage of a plate can be prevented.

[0029] In order for there to be especially no limit in the configuration of a resin passage outlet, to separate certainly the plinth and resin passage which were fabricated after solidification of a resin ingredient and to make finishing of a shaping side unnecessary, it is desirable to set the path of a resin passage outlet to 2mm or less.

[0030] The configuration of the crevice established in metal mold is suitably determined according to the configuration of the member for anchoring, the configuration of aperture opening, etc. therefore, the above-mentioned example -- like -- the longitudinal section -- abbreviation -- although not limited to a stair-like thing, a part with the deep depth and a shallow part are prepared in a crevice, namely, since back finishing is made at the fabricated plinth as it is unnecessary, it is desirable to prepare the depth in which a part with the high height of the plinth fabricated and a low part are formed in a crevice.

[0031] The reason back finishing is unnecessary is as follows. Generally in a resin passage outlet, the small projection by flash solidification of a resin ingredient is done after resin shaping. If the same height as the location in which the summit of a plinth, i.e., the member for anchoring of a plinth, is attached has this small projection, both adhesion will become scarce about a plate at aperture opening in the mounting beam case. Therefore, although it will be necessary to remove this small projection, a complicated process increases. Then, if a small projection is formed in the bottom of one step rather than the member for anchoring of the plinth fabricated, finishing after the above is unnecessary.

[0032] For that purpose, it is desirable to prepare a part with the deep depth and a shallow part in a crevice, to equip a deep part with the member for anchoring, and to equip a shallow part with a resin passage outlet. Moreover, although back finishing can be made unnecessary also by equipping the side face of a crevice with a resin passage outlet depending on the case, it is more desirable to equip the above-mentioned shallow part with a resin passage outlet in view of the fluidity of resin.

[0033] As a member for anchoring, even if it bears anchoring immobilization (this immobilization) in aperture opening of a plate, positioning until sealants, such as urethane which intervenes between a plate and aperture opening and bears anchoring immobilization (this immobilization) in aperture opening of a plate, solidify, and eye tacking may be borne. In the case of the former, it is placed between the periphery sides of a plate between a plate and aperture opening rather than the member for anchoring by the sealant for water leak prevention if needed. On the other hand, in the case of the latter, the sealant itself, such as urethane, functions as a sealant for water leak prevention.

[0034]

[Example] Hereafter, the example of this invention is explained based on a drawing. Drawing 2 is the outline sectional view showing an example of the manufacture approach of the plate for apertures with a member for anchoring in this invention. The resin molding die 40 has a punch 5, an intermediate type 6, and female mold 7, and sprue, a runner, and the resin passage 8 that consists of the gate are formed between the punch 5 and the intermediate type 6. The crevice 22 is established in the underside of an intermediate type 6, and when the periphery section of the plate 1 which consists of a glass plate of the veneer which curved is pinched with an intermediate type 6 and female mold 7, cavity space is formed of a crevice 22 and one side face of a plate 1. Moreover, of the wall of an intermediate type 7, the wall of female mold 7, and the periphery section of a plate 1, the 2nd cavity space 31 is formed in the location which is equivalent to a periphery side from the crevice 22 of an intermediate type 6 and female mold 7 so that a plate 1 may be gone around.

[0035] In addition, the part which contacts the plate 1 of the female mold 7 of a plate 1 is equipped with the absorption member 9 which becomes the part which it has the packing 10 which consists of polyurethane rubber which pinches a plate 1 flexibly, and contacts the plate 1 of an intermediate type 6 from the fluororubber which can absorb the deflection of the curvature of a plate 1.

[0036] a crevice 22 -- the longitudinal section -- abbreviation -- it is stair-like and has partial 22a with the deep depth, and shallow partial 22b. The deep part of a crevice 22 is equipped with the member 21 for anchoring. Moreover, the resin passage outlet 11 is established in the above-mentioned shallow part, and an elasticity vinyl chloride compound resin ingredient is injected from this resin passage outlet 11 in cavity space. A resin ingredient is injected from the 2nd resin passage outlet 12 in the 2nd cavity space 31 at the same time the 2nd resin passage outlet 12 is established in the wall which forms the 2nd cavity space 3 of an intermediate type 7 on the other hand and it is injected from the resin passage outlet 11.

[0037] In this way, the deep part of a crevice 22 was equipped with the member for anchoring, the plate 1 was pinched with an intermediate type 6 and female mold 7, after injecting the resin ingredient to cavity space and solidifying it, an intermediate type 6 and female mold 7 were released, and the plinth of drawing

and the member for anchoring was really fabricated by the plate with the member for anchoring from metal mold in the plate by [of the resin passage outlet 11] by the way tearing resin. Under the present circumstances, even if the small projection remained in the lower berth of a plinth which makes the shape of a cross-section abbreviation stairway by having torn resin, finishing was unnecessary after removing.

[0038] In this example, two or more holes are prepared in the pars basilaris ossis occipitalis of the member for anchoring. When a resin ingredient is injected to cavity space, a resin ingredient flows also into this hole. Consequently, after a resin ingredient solidifies, it will be unified more firmly and the pars basilaris ossis occipitalis and plinth of the member for anchoring are desirable.

[0039] The outline perspective view and drawing 4 which show an example of the plate with a member for anchoring with which drawing 3 was manufactured as mentioned above are the A-A line sectional view of drawing 3. The frame 3 made of synthetic resin is really fabricated by the periphery section of a plate 1, and it has the member 21 for anchoring united with the plinth 2 of the member for anchoring really fabricated at the 1 side-face side of a plate 1 in the inner circumference side.

[0040] In this way, in using the obtained plate with a member for anchoring as an automobile nonopening window, it can carry out the positioning maintenance of the plate 1 at aperture opening by inserting the member 21 for anchoring in the tooling holes prepared in the predetermined location of automobile aperture opening. Although the small projection 29 remains in this example in the lower berth of a plinth 2 which makes the shape of this cross-section abbreviation stairway, the residual location of the small projection 29 is a location which is not ***** about effect at positioning of a plate. Furthermore, the laminating of the sealant 4 for water leak prevention is carried out between the frame 3 of the 1st page of a plate, and the plinth 2 of the member for anchoring, and the plate with a member for anchoring is attached in aperture opening.

[0041] When the member 21 for anchoring is what can fix a plate 1 to aperture opening in itself, a butyl sealant etc. is used as a sealant for a water leak, but when deficient in the fixed force of the member 21 for anchoring, an urethane sealant etc. is used as a sealant for a water leak. The member 21 for anchoring has the function to tacking hold a plate 1 in the predetermined location of aperture opening until in the case of the latter an urethane sealant solidifies and a plate is fixed to aperture opening. As such a member for anchoring, by this example, although the resin mold goods which consist of polyacetal were used, it is not limited to this.

[0042]

[Effect of the Invention] According to this invention, since the plinth of the member for anchoring is really fabricated from the end face of a plate on one side face by the side of predetermined distance inner circumference, the sealant for water leak prevention applied in case a plate is attached in aperture opening can be made into a periphery side rather than this plinth, and an increment and the excessive process of components mark can be prevented. When really fabricating a frame simultaneously in the periphery section of a plate especially, the process of clearance of the pons I-like part of the resin which existed conventionally can be abolished. And it becomes by abolishing this clearance process, without giving a blemish to a plate.

[0043] Moreover, the activity of the resin done in the fabricated plinth which tears off and removes a small projection also becomes unnecessary by forming the cavity space of metal mold so that a level difference may be prepared in the configuration of the plinth to fabricate, and injecting a resin ingredient to cavity space from the part equivalent to the place where the level difference of a plinth is low.

[0044] Since there is furthermore no constraint in the method of wearing of the member for anchoring to metal mold according to this invention, the direction where the member for anchoring is extended is not limited in the direction of a normal of a plate, but can be turned in the proper direction according to the design of aperture opening or a plate. The manufacture approach of the plate with a member for anchoring that could attach only the number required for a required location in the plate, and its degree of freedom on a product design also increased the location in which the member for anchoring is attached according to the objects, such as eye tacking and this immobilization, the magnitude of a plate, etc. can be acquired.

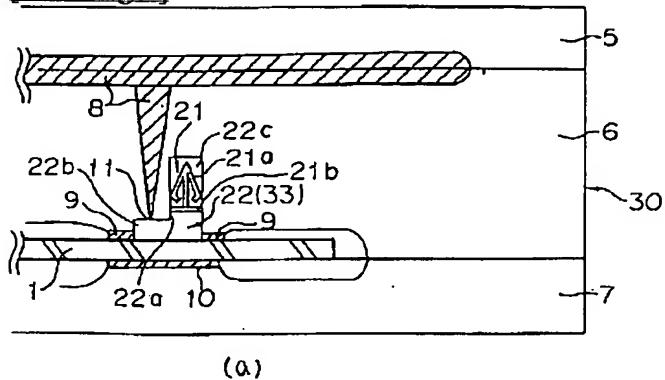
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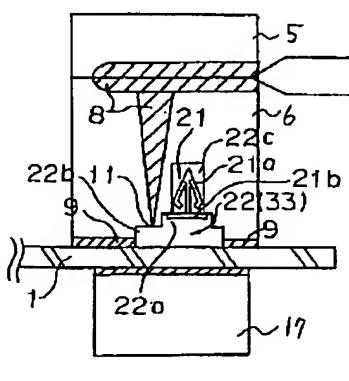
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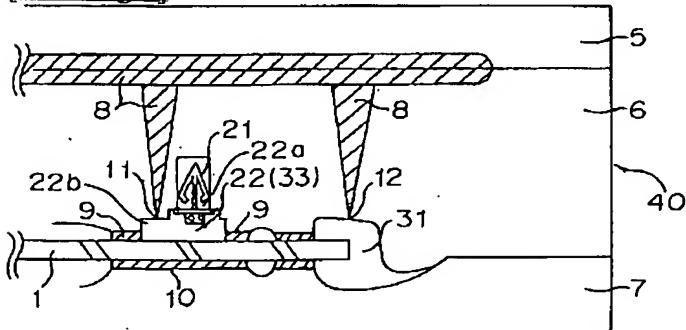
DRAWINGS

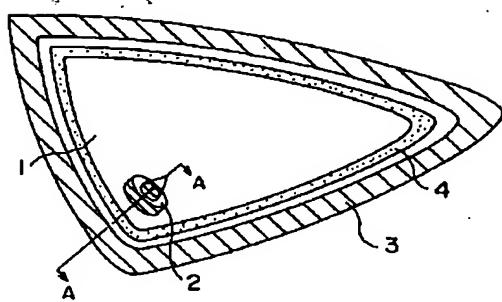
[Drawing 1]

(a)

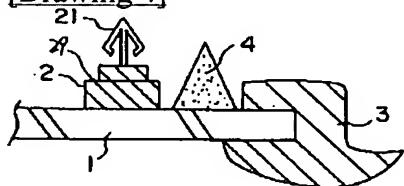


(b)

[Drawing 2]**[Drawing 3]**



[Drawing 4]



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CORRECTION OR AMENDMENT

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[Procedure amendment]

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[Procedure amendment 1]

[Document to be Amended] Description

[Item(s) to be Amended] 0028

[Method of Amendment] Modification

[Proposed Amendment]

[0028] For example, one mold part which consists of sprue, runners, punches 5 joined so that the gate (resin passage 8) might be formed, and intermediate types 6 as shown in drawing 1 (b), It is desirable to constitute a resin molding die for the mold part which consists of a backup member 17 (it is desirable to have packing in a contact side with a plate) for preventing the deflection and breakage by the injection pressure of the resin ingredient of a plate 1 as two mold parts. This is because only the required part of a plate is pinched by two mold parts (the part and the backup member 17 of the intermediate type 6 of a punch 5 and the intermediate types 6), so breakage of a plate can be prevented.

[Procedure amendment 2]

[Document to be Amended] Description

[Item(s) to be Amended] 0034

[Method of Amendment] Modification

[Proposed Amendment]

[0034]

[Example] Hereafter, the example of this invention is explained based on a drawing. Drawing 2 is the outline sectional view showing an example of the manufacture approach of the plate for apertures with a member for anchoring in this invention. The resin molding die 40 has a punch 5, an intermediate type 6, and female mold 7, and sprue, a runner, and the resin passage 8 that consists of the gate are formed between the punch 5 and the intermediate type 6. The crevice 22 is established in the underside of an intermediate type 6, and when the periphery section of the plate 1 which consists of a glass plate of the veneer which curved is pinched with an intermediate type 6 and female mold 7, cavity space is formed of a crevice 22 and one side

face of a plate 1. Moreover, of the wall of an intermediate type 6, the wall of female mold 7, and the periphery section of a plate 1, the 2nd cavity space 31 is formed in the location which is equivalent to a periphery side from the crevice 22 of an intermediate type 6 and female mold 7 so that a plate 1 may be gone around.

[Procedure amendment 3]

[Document to be Amended] Description

[Item(s) to be Amended] 0036

[Method of Amendment] Modification

[Proposed Amendment]

[0036] a crevice 22 -- the longitudinal section -- abbreviation -- it is stair-like and has partial 22a with the deep depth, and shallow partial 22b. The deep part of a crevice 22 is equipped with the member 21 for anchoring. Moreover, the resin passage outlet 11 is established in the above-mentioned shallow part, and an elasticity vinyl chloride compound resin ingredient is injected from this resin passage outlet 11 in cavity space. A resin ingredient is injected from the 2nd resin passage outlet 12 in the 2nd cavity space 31 at the same time the 2nd resin passage outlet 12 is established in the wall which forms the 2nd cavity space 31 of an intermediate type 6 on the other hand and it is injected from the resin passage outlet 11.

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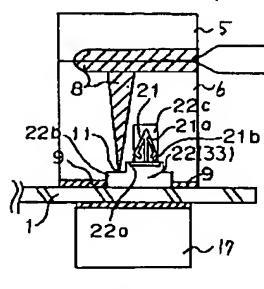
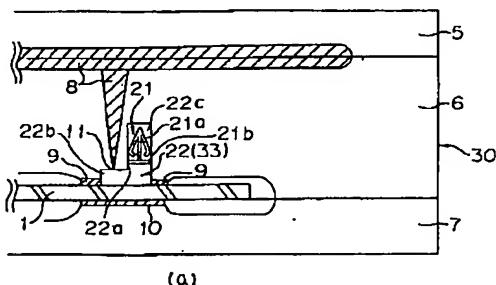
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(54)【発明の名称】 取付け用部材付き窓用板状体の製造方法

(57)【要約】

【目的】部品点数の増加や余分な工程を必要としない取付け用部材付き板状体の製造方法を得る。

【構成】上型5、中間型6、下型7とを有する樹脂成形用金型30の、中間型6の下面に設けられた凹部22と、周縁部を中間型6と下型7とで挟持される板状体1周縁部とによって形成されたキャビティ空間の凹部22に取付け用部材21を装着し、樹脂材料を射出し、取付け用部材付き板状体を製造する。



【特許請求の範囲】

【請求項1】少なくとも2つの型部分からなる樹脂成形用金型によって窓用板状体の周縁部を挟持し、一方の型部分の前記板状体の端面から所定の距離だけ内周側に相当する位置に設けられた凹部と板状体の一側面とによって形成されたキャビティ空間に取付け用部材を装着し、前記キャビティ空間内に前記取付け用部材の台座成形用樹脂材料を射出して固化させ、板状体の一側面に取付け用部材とともに取付け用部材の台座を一体的に成形することを特徴とする取付け用部材付き窓用板状体の製造方法。

【請求項2】前記凹部は深さが異なる少なくとも2つの部分を有していて、前記取付け用部材を前記2つの部分のうちの深さの深い方に装着し、深さの浅い方から前記樹脂材料をキャビティ空間内に導入することを特徴とする請求項1の取付け用部材付き窓用板状体の製造方法。

【請求項3】前記取付け用部材の底部によってキャビティ空間の一面を区画し、前記凹部の取付け用部材装着部分への前記樹脂材料の流入を防止することを特徴とする請求項1または2の取付け用部材付き窓用板状体の製造方法。

【請求項4】少なくとも一方の型部分には、前記凹部から所定の距離だけ外周側に離隔した位置に第2のキャビティ空間が形成されるように構成された内壁を有し、該内壁と板状体の周縁部とで形成される第2のキャビティ空間内に樹脂材料を射出して固化させ、板状体の周縁部に枠体を一体的に成形することを特徴とする請求項1、2または3の取付け用部材付き窓用板状体の製造方法。

【発明の詳細な説明】

【0001】

【産業上の利用分野】本発明は窓用板状体を窓開口部に取付ける際に用いる取付け用部材付き板状体の製造方法に関し、特に、板状体を窓開口部に接着剤によって取付ける際に、板状体を窓開口部に位置決め、仮止めするための部材を有する板状体の製造方法に関する。

【0002】

【従来の技術】窓用板状体は、窓開口部と板状体との間にウレタン等のシーラントを介在して、窓開口部に取付けられる。他に、板状体に取付けられたクリップやスタッドボルト等を窓開口部の所定の孔に挿入して、窓用板状体を窓開口部に取付ける方法もある。

【0003】前者の場合、シーラントによって窓開口部と板状体とが強固に接着するまでの間、板状体を仮止めするクリップや、窓開口部の所定の位置に板状体が取付けられるように位置決めするクリップ等が、板状体に取付けられることがある。また、後者の場合、窓開口部と板状体との間に別途ブチルシーラント等の水洩れ防止用シーラントが介在されて、窓の水密性が確保される。なお、前者のウレタン等のシーラントは、それ自身水洩れ防止効果を有する。

【0004】これらのスタッドボルトやクリップ等の板状体を窓開口部に取付けるために用いられる部材（以下これらを総称して取付け用部材という）は、上記のように板状体に直接取付けられる場合もあるが、他に板状体が窓開口部に取付けられる際に、板状体の周縁部に一体的に成形された合成樹脂製の枠体に取付けられることもある。

【0005】こうした取付け用部材の板状体、あるいは枠体への取付けは、ウレタン等のシーラントや両面テープ等を取付け用部材と板状体等の所定位置との間に介在させて接着取付けされる。

【0006】

【発明が解決しようとする課題】一般的には、取付け用部材は板状体の面の法線方向に伸びるように取付けられるものである。そのため、取付け用部材の向きが板状体の曲率に左右されやすい。取付け用部材の向きの精度を上げようとする場合には、取付け用部材や板状体の曲率の従来以上の管理が必要となり、また接着のための治工具も専用化しなければならない。さらに、特別に取付け用部材の向きを任意に設定しようとすれば、取付け用部材そのものの形状を工夫する必要がある。特に取付け用部材を複数個使用する場合には、使用する数だけその種類が必要となる。

【0007】また、取付け用部材の板状体への取付けにウレタンシーラントを用いる場合には、ウレタンシーラントが硬化するのに時間を要するため、これらを保管するスペースの確保が必要であった。

【0008】一方、取付け用部材を枠体に取付ける場合、通常取付け用部材は枠体の内面側に配置される。水洩れ防止用シーラントが別途枠体と窓開口部との間に適用される場合には、上記の取付け用部材はこのシーラントの外周側に配置されることとなり、水密性に信頼が低く、水洩れ防止のためにパッキング等の水洩れ防止部品がさらに必要となる。

【0009】そこで、枠体の板状体の内周側への幅を広くすることによって、取付け用部材を水洩れ防止用シーラントの内周側に配置させることが考えられる。しかし、この場合シーラントの厚み分だけ窓全体の厚みが厚くなってしまい、さらに内周側に広くする分だけ余分な枠体材料を必要とする。

【0010】取付け用部材を水洩れ防止用シーラントの内周側に配置させながら枠体材料の増加を防ぐ手段として、取付け用部材の台座として取付け用部材を配置する部分にのみ枠体の内周側への張り出しを設けることが提案されている。板状体の周縁部への枠体の一体成形は、板状体の周縁部を樹脂成形用金型に挟持し、金型のキャビティ空間に樹脂を射出することによって行われる。そこで、この金型に橋わたし状の樹脂材料の誘導路を設けることによって、上記の台座を板状体に一体に成形することができ、この台座に取付け用部材が取付けられる。

【0011】しかし、この橋わたし状の樹脂材料の誘導路によって成形される部分は板状体の端面から一定距離にある一周のうちの一部分であるため、どうしても内周側への張り出しがある部分とない部分との段差によって隙間が生じてしまい、十分な水もれ防止が達成できない。さらに、枠体の一部分である橋わたし状部分と板状体とでは、水洩れ防止シーラントを適用する際に適宜用いられるプライマーをそれぞれ用意しなければならない。

【0012】この橋わたし状部分を成形後に取り除くことにより、取付け用部材の台座を板状体に設け、それよりも外周側の板状体面に段差なく水洩れ防止用シーラントを適用することができます。ところがこのような方法をとっても、橋わたし状部分の取り除きには余分な工程がかかってしまう。さらに、この作業によって板状体を傷つける危険性があるという欠点がある。

【0013】

【課題を解決するための手段】本発明は、前述の課題を解決すべくなされたものであり、少なくとも2つの型部分からなる樹脂成形用金型によって窓用板状体の周縁部を挟持し、一方の型部分の前記板状体の端面から所定の距離だけ内周側に相当する位置に設けられた凹部と板状体の一側面とによって形成されたキャビティ空間に取付け用部材を装着し、前記キャビティ空間内に前記取付け用部材の台座成形用樹脂材料を射出して固化させ、板状体の一側面に取付け用部材とともに取付け用部材の台座を一体的に成形することを特徴とする取付け用部材付き窓用板状体の製造方法である。

【0014】以下、図面に基づいて本発明を詳細に説明する。図1(a)は、本発明における取付け用部材付き窓用板状体の製造方法の一例を示す概略断面図であり、図1(b)はその変形例である。樹脂成形用金型30は上型5、中間型6、下型7を有していて、上型5と中間型6との間にスブル、ランナ、ゲートとからなる樹脂流路8が形成されている。中間型6の下面には凹部22が設けられていて、板状体1の周縁部を中間型6と下型7とで挟持した際に、凹部22と板状体1の一側面とによってキャビティ空間が形成される。

【0015】この際に下型7の板状体1に当接する部分に、板状体1を柔軟に挟持するウレタンゴム等からなるパッキング10を備えることは好ましい。また、中間型6の板状体1に当接する部分に、板状体1の曲率の偏差を吸収できるフッ素ゴム等からなる吸収部材9を備えることは好ましい。

【0016】凹部22は縦断面が略階段状となっていて、深さの深い部分22aと浅い部分22bとを有する。樹脂流路出口11は上記の浅い部分に設けられ、キャビティ空間にはこの樹脂流路出口11から樹脂材料が射出される。また、凹部22の深い部分22aには取付け用部材21が装着される。

【0017】この際、取付け用部材21の好ましい形状として、上方の取付け用部材本体部21aが略円錐状をなし、底部21bに平板状部分を有することによって、この平板状部分がキャビティ空間の上面を区画する蓋として機能し、凹部22の取付け用部材装着部分22cである上方への樹脂材料の流入を防止できる。また、略円錐状であることによって、取付け用部材21は凹部22に確実に装着される。なお、上記の蓋の機能は、取付け用部材自身に備えずとも、別途取付け用部材装着部分への樹脂材料の流入を防止する手段を備えてもよく、いずれかの手段によって上記の流入防止がなされる。

【0018】こうして、凹部22の深い部分22aに取付け用部材を装着し、板状体1を中間型6と下型7とで挟持して、キャビティ空間に樹脂材料を射出して固化させ、金型から板状体を取り出すことによって、取付け用部材の台座が取付け用部材とともに板状体に一体成形される。

【0019】取付け用部材本体部としては、上記の円錐形状のものでなくとも、断面が略三角形状のものも使用できる。すなわち、本体部の先端から底部に向けて末広がり形状をなす板バネ機能を備えたものも例示できる。この場合、取付け用部材の装着後の脱落を防止でき、樹脂材料の圧力によって取付け用部材の位置ずれも防止できる。

【0020】さらに、凹部の階段形状を三段として、本体部のみを階段の最上段に装着し、中段と最上段との境界を底部の平板状部分で蓋をすることによって、平板状部分が中段の上側に係合し、樹脂材料がキャビティ空間に射出されても、樹脂圧によって樹脂材料が本体部側に漏れることがなく好ましい(図1(b)参照)。

【0021】本発明における板状体としては平板状のものであっても彎曲状のものであってもよく、またその材料としては、単板ガラスをはじめとし、複層ガラス、少なくとも1枚のガラス板と合成樹脂製の膜とが接着された合わせガラス等のガラス板や、有機透明樹脂板、さらにはこれらを複数枚積層したもの等、種々のものが用いられる。

【0022】なお、板状体と取付け部材の台座との接着性の向上に鑑みると、板状体の取付け用部材の台座が設けられる位置にはあらかじめウレタン系、アクリル系、ナイロン系、フェノール系、ポリエステル系、シリコン系等の接着剤を用いてプライマー処理を施しておくことが好ましい。また、取付け用部材にも適宜の接着剤を塗布しておくことは、取付け用部材と台座との接着性が向上するので好ましい。

【0023】本発明における台座の材料としては、例えばポリ塩化ビニル、塩化ビニル/エチレンの共重合体、塩化ビニル/酢酸ビニルの共重合体、塩化ビニル/プロピレンの共重合体、塩化ビニル/エチレン/酢酸ビニルの共重合体、の少なくとも1種または2種以上の混合物

をベース樹脂として可塑剤等の添加剤を加えて軟質材料としてコンパウンドしたものであり、流動性を高めるために他の熱可塑性樹脂をブレンドすることもできる。

【0024】ブレンドする熱可塑性樹脂としては、塩素化ポリエチレン樹脂、ウレタン変性塩化ビニル樹脂、ウレタン樹脂、ポリエステル系樹脂、アクリル樹脂、ポリエステルエラストマー、NBRあるいはSBR等を少なくとも1種または2種以上の混合物等が用いられる。

【0025】これらの材料は通常の射出成形によって成形されるものであるが、本発明における台座は、他に反応性のウレタン樹脂材料を射出する反応射出成形によって成形されるものでもよい。さらには、用いる材料としては熱硬化性樹脂材料も挙げられる。樹脂流路部の材料分を減少できるホットランナ方式や再利用が可能な上記の熱可塑性樹脂を用いることが好ましい。

【0026】板状体の周縁部には、窓開口部と板状体との間に介在される合成樹脂製の枠体が一体成形されていてよい。この枠体を台座と同じ材料で成形する場合には、金型の凹部よりも板状体の外周側の位置に第2のキャビティ空間を設けることによって、凹部と板状体とで形成される第1のキャビティ空間内への樹脂材料の射出と同時に、第2のキャビティ空間内に樹脂材料を射出することによって、容易に台座と枠体とを板状体に一体成形できる。

【0027】本発明における樹脂成形用金型としては、通常の金属製金型を一般に採用できる。生産ロット数、樹脂材料の射出圧の制御等により、耐熱性樹脂型等の廉価な型も採用できる。上記の例では、樹脂成形用金型は3つの型部分からなっているが、少なくとも2つの型部分からなっていれば十分であり、スブル、ランナ、ゲート等の構成上の要求に応じて、適宜決定できる。

【0028】例えば、図1(b)に示すように、スブル、ランナ、ゲート(樹脂流路8)を形成するように接合された上型15、中間型16からなる1つの型部分と、板状体1の樹脂材料の射出圧によるたわみや破損を防止するためのバックアップ部材17(板状体との当接面にパッキングを有することが好ましい)からなる型部分とを2つの型部分として、樹脂成形用金型を構成することは好ましい。これは、板状体の必要な部分のみを2つの型部分(上型15および中間型16のうちの中間型16の部分とバックアップ部材17)によって挟持しているため、板状体の破損を防止できるからである。

【0029】樹脂流路出口の形状に特に制限はなく、樹脂材料の固化後、成形された台座と樹脂流路とが確実に切り離され、成形面の仕上げを不要とするために、樹脂流路出口の径を2mm以下とすることが好ましい。

【0030】金型に設けられる凹部の形状は、取付け用部材の形状や窓開口部の形状等に応じて適宜決定される。したがって、上記の一例のように縦断面が略階段状

であることには限定されないが、凹部に深さの深い部分と浅い部分とを設ける、すなわち成形される台座の高さが高い部分と低い部分とが形成されるような深さを凹部に設けることは、成形された台座に後仕上げを不要とできるので好ましい。

【0031】後仕上げが不要である理由は以下のとおりである。一般に樹脂流路出口には、樹脂成形の後、樹脂材料のはみ出し固化による小突起ができる。この小突起が台座の頂上、すなわち台座の取付け用部材が取付けられている位置と同じ高さにあると、窓開口部に板状体を取付けた際に両者の密着性が乏しくなる。そのためこの小突起を除去する必要が生じるが、煩雑な工程が増加する。そこで、成形される台座の取付け用部材よりも一段下に小突起が形成されるのであれば、上記の後仕上げは不要である。

【0032】そのためには、凹部に深さの深い部分と浅い部分とを設け、深い部分に取付け用部材を装着し、樹脂流路出口を浅い部分に備えることが好ましい。また、場合によっては凹部の側面に樹脂流路出口を備えることによっても後仕上げを不要にできるが、上記の深い部分に樹脂流路出口を備える方が、樹脂の流動性に鑑みて好ましい。

【0033】取付け用部材としては、板状体の窓開口部への取付け固定(本固定)を担うものであっても、板状体と窓開口部との間に介在されて板状体の窓開口部への取付け固定(本固定)を担うウレタン等のシーラントが固化するまでの、位置決め、仮止めを担うものであってもよい。前者の場合、必要に応じて取付け用部材よりも板状体の外周側に水洩れ防止用シーラントが板状体と窓開口部との間に介在される。一方後者の場合、ウレタン等のシーラント自身が水洩れ防止用シーラントとして機能する。

【0034】

【実施例】以下、図面に基づいて本発明の実施例を説明する。図2は、本発明における取付け用部材付き窓用板状体の製造方法の一例を示す概略断面図である。樹脂成形用金型40は上型5、中間型6、下型7を有していて、上型5と中間型6との間にスブル、ランナ、ゲートとかなる樹脂流路8が形成されている。中間型6の下面には凹部22が設けられていて、彎曲した单板のガラス板からなる板状体1の周縁部を中間型6と下型7とで挟持した際に、凹部22と板状体1の一側面とによってキャビティ空間が形成される。また、中間型6および下型7の凹部22よりも外周側に相当する位置には、中間型7の内壁、下型7の内壁および板状体1の周縁部とによって、板状体1を周回するように第2のキャビティ空間31が形成されている。

【0035】なお、板状体1の下型7の板状体1に当接する部分には、板状体1を柔軟に挟持するウレタンゴムからなるパッキング10が備えられ、また、中間型6の

板状体1に当接する部分に板状体1の曲率の偏差を吸収できるフッ素ゴムからなる吸收部材9が備えられている。

【0036】凹部22は縦断面が略階段状となっていて、深さの深い部分22aと浅い部分22bとを有する。凹部22の深い部分には取付け用部材21が装着される。また、樹脂流路出口11は上記の浅い部分に設けられ、キャビティ空間にはこの樹脂流路出口11から軟質塩化ビニルコンパウンド樹脂材料が射出される。一方、第2の樹脂流路出口12が中間型7の第2のキャビティ空間3を形成する内壁に設けられ、樹脂流路出口11から射出されると同時に、第2の樹脂流路出口12から第2のキャビティ空間31に樹脂材料が射出される。

【0037】こうして凹部22の深い部分に取付け用部材を装着し、板状体1を中間型6と下型7とで挟持して、キャビティ空間に樹脂材料を射出して固化させた後、中間型6と下型7とを解放し、樹脂流路出口11のところで樹脂をちぎることによって、板状体を金型から取り出し、取付け用部材の台座が取付け用部材とともに板状体に一体成形された。この際、樹脂をちぎったことにより断面略階段状をなす台座の下段に小突起が残留しても、除去する後仕上げは不要であった。

【0038】本例では、取付け用部材の底部に複数の孔を設けている。キャビティ空間に樹脂材料を射出した場合、この孔にも樹脂材料が流入する。この結果、樹脂材料が固化した後には、取付け用部材の底部と台座とがより強固に一体化されることになり、好ましい。

【0039】図3は上記のように製造された取付け用部材付き板状体の一例を示す概略斜視図、図4は図3のA-A線断面図である。板状体1の周縁部には合成樹脂製の枠体3が一体成形されており、その内周側には板状体1の一側面側に一体成形された取付け用部材の台座2と一体化された取付け用部材21を有する。

【0040】こうして得られた取付け用部材付き板状体を自動車固定窓として用いる場合には、自動車窓開口部の所定位置に設けられた位置決め孔に取付け用部材21を挿入することによって、板状体1を窓開口部に位置決め保持できる。本例では、この断面略階段状をなす台座2の下段に小突起29が残留しているが、小突起29の残留位置は板状体の位置決めに影響をおよぼさない位置である。さらに、板状体1面の枠体3と取付け用部材の台座2との間に水洩れ防止用シーラント4を積層して、取付け用部材付き板状体が窓開口部に取付けられる。

【0041】取付け用部材21がそれ自身板状体1を窓開口部に固定しうるものである場合には、水洩れ用シーラントとしてはブチルシーラント等が用いられるが、取付け用部材21の固定力に乏しい場合には、水洩れ用シーラントとしてウレタンシーラント等が用いられる。後者の場合、ウレタンシーラントが固化して板状体が窓開口部に固定されるまでの間、取付け用部材21は、板状

体1を窓開口部の所定位置に仮止め保持する機能を有する。このような取付け用部材として、本実施例ではポリアセタールからなる樹脂成形品を用いたがこれに限定されない。

【0042】

【発明の効果】本発明によれば、取付け用部材の台座を板状体の端面から所定距離内周側の一側面に一体成形するため、板状体を窓開口部に取付ける際に適用される水洩れ防止用シーラントをこの台座よりも外周側とすることができる、部品点数の増加や余分な工程を防止できる。特に、板状体の周縁部に枠体を同時に一体成形する場合、従来あった樹脂の橋わたし状部分の除去といった工程をなくしうる。しかもこの除去工程をなくすことによって、板状体に傷をつけることもなくなる。

【0043】また、成形する台座の形状に段差を設けるように金型のキャビティ空間を形成し、台座の段差の低い所に相当する部分からキャビティ空間に樹脂材料を射出することによって、成形された台座にできあがる樹脂のひきちぎり小突起を取り除く作業も不要となる。

【0044】さらに本発明によれば、金型への取付け用部材の装着の仕方に制約がないため、取付け用部材の伸びる方向は板状体の法線方向に限定されず、窓開口部や板状体の設計に応じて適宜の方向に向けることができる。取付け用部材を取付ける位置も、仮止め、本固定等の目的や板状体の大きさ等に応じて、必要な位置に必要な数だけ、板状体に取付けることができ、製品設計上の自由度が増した取付け用部材付き板状体の製造方法を得ることができる。

【図面の簡単な説明】

【図1】本発明における取付け用部材付き窓用板状体の製造方法の一例を示す概略断面図

【図2】本発明における取付け用部材付き窓用板状体の製造方法の一例を示す概略断面図

【図3】本発明における取付け用部材付き窓用板状体の一例を示す概略斜視図

【図4】図3のA-A線断面図

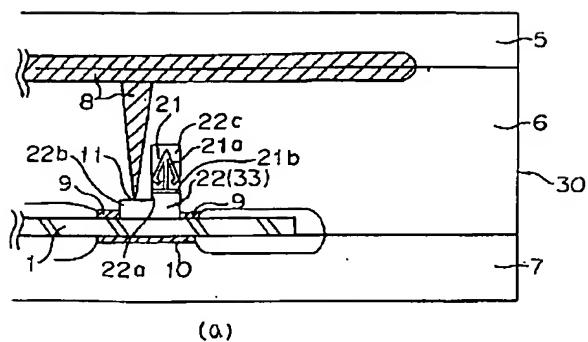
【符号の説明】

- 1：板状体
- 2：取付け用部材の台座
- 3：枠体
- 4：水洩れ防止シーラント
- 5：上型
- 6：中間型
- 7：下型
- 8：樹脂流路
- 9：吸收部材
- 10：バッキング
- 11、12：樹脂流路出口
- 21：取付け用部材
- 22：凹部

30、40：樹脂成形用金型

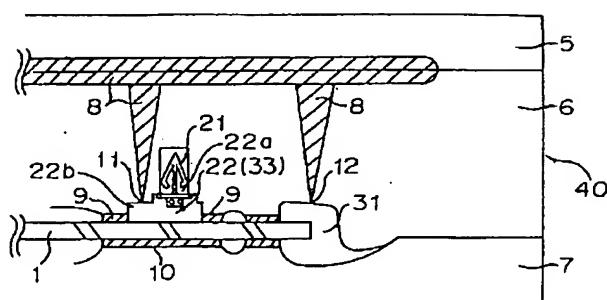
* * 31：第2のキャビティ空間

【図1】



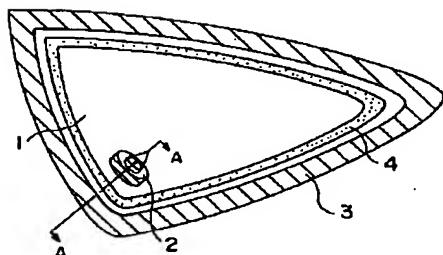
(a)

【図2】

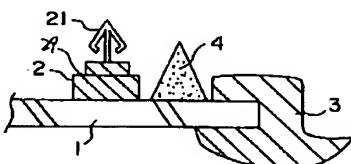


(b)

【図3】



【図4】



【公報種別】特許法第17条の2の規定による補正の掲載
【部門区分】第2部門第4区分
【発行日】平成14年4月23日(2002.4.23)

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【手続補正書】
【提出日】平成14年1月28日(2002.1.28)

【手続補正1】

【補正対象書類名】明細書
【補正対象項目名】0028

【補正方法】変更

【補正内容】

【0028】例えば、図1(b)に示すように、スプル、ランナ、ゲート(樹脂流路8)を形成するように接合された上型5、中間型6からなる1つの型部分と、板状体1の樹脂材料の射出圧によるたわみや破損を防止するためのバックアップ部材17(板状体との当接面にバッキングを有することが好ましい)からなる型部分とを2つの型部分として、樹脂成形用金型を構成することは好ましい。これは、板状体の必要な部分のみを2つの型部分(上型5および中間型6のうちの中間型6の部分とバックアップ部材17)によって挟持しているため、板状体の破損を防止できるからである。

【手続補正2】

【補正対象書類名】明細書
【補正対象項目名】0034

【補正方法】変更

【補正内容】

【0034】

【実施例】以下、図面に基づいて本発明の実施例を説明する。図2は、本発明における取付け用部材付き窓用板状体の製造方法の一例を示す概略断面図である。樹脂成

形用金型40は上型5、中間型6、下型7を有していて、上型5と中間型6との間にスプル、ランナ、ゲートとからなる樹脂流路8が形成されている。中間型6の下面には凹部22が設けられていて、彎曲した単板のガラス板からなる板状体1の周縁部を中間型6と下型7とで挟持した際に、凹部22と板状体1の一側面とによってキャビティ空間が形成される。また、中間型6および下型7の凹部22よりも外周側に相当する位置には、中間型6の内壁、下型7の内壁および板状体1の周縁部とによって、板状体1を周回するように第2のキャビティ空間31が形成されている。

【手続補正3】

【補正対象書類名】明細書

【補正対象項目名】0036

【補正方法】変更

【補正内容】

【0036】凹部22は縦断面が略階段状となっていて、深さの深い部分22aと浅い部分22bとを有する。凹部22の深い部分には取付け用部材21が装着される。また、樹脂流路出口11は上記の浅い部分に設けられ、キャビティ空間にはこの樹脂流路出口11から軟質塩化ビニルコンパウンド樹脂材料が射出される。一方、第2の樹脂流路出口12が中間型6の第2のキャビティ空間31を形成する内壁に設けられ、樹脂流路出口11から射出されると同時に、第2の樹脂流路出口12から第2のキャビティ空間31に樹脂材料が射出される。